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HBE Corporation

11330 Olive Street Road, P.O. Box 419039, St Louis, Missouri 63141, (314) 567-9000

December 30, 2002

Mary Fulgham, Esq.
Regional Counsel
US Environmental Protection Agency
Region 5
77 West Jackson Bivd.
Chicago, IL 60604-3590

Re: 319 East Illinois Street, Chicago- Adams Mark Hotel Site
STS Final Report of Sampling and Radiological Analysis- B27

Dear Ms. Fulgham:

Enclosed are two copies of STS Final Report regarding the Thorium identification at the previous B27 boring location. If you have any questions regarding this Report, please direct them through me so that HBE may be informed of your concerns

Sincerely,

John A. Paulauskas

John A Paulauskis
Mechanical Engineer

Cc: Rich Miller
Matt Lawson

STS CONSULTANTS

STS Consultants, Ltd.
750 Corporate Woods Parkway
Vernon Hills, Illinois 60061-3153

voice 847-279-2500
fax 847-279-2520
web www.stsconsultants.com

December 20, 2002

Mr. John Paulaskis
HBE Corporation
11330 Olive Boulevard
St. Louis, Missouri 63141

RE: *Report of Soil Sampling and Radiological Analysis, Adams Mark Site, Southwest Corner of Illinois and New Streets, Chicago, Illinois - STS Project No. 1-24418-YG*

Dear Mr. Paulaskis:

As you know, STS Consultants, Ltd. (STS) has recently completed a sampling and analysis task at the above referenced site. This report describes the work conducted as a follow-up to a previous investigation of this property conducted for Pullman Bank. Our report of that previous work, dated September 20, 2002, identified indications of soil exhibiting elevated gamma radiation at one location. The purpose of the work conducted for this current investigation was to sample and analyze soil from that location to document the specific radionuclides responsible for the elevated gamma radiation.

Manufacturing in the 1910s, 1920s and 1930s of gas lantern mantles by Lindsay Light in the vicinity of the subject site involved the use of thorium, a radioactive element. Previous radiation screening has documented residual radioactivity on properties in the general vicinity. As part of a site assessment, borings were advanced on the subject site and gamma logging conducted to assess the site for the presence of potential radioactive anomalies. One location showed levels of gamma radiation indicative of impacts above the clean-up level established by USEPA for the vicinity properties.

The scope of work for this current investigation was to obtain soil samples for radiological analysis in an effort to document the specific radionuclides present in the soil responsible for the elevated gamma radiation. It was proposed to collect these samples from a test pit in order to facilitate radiological screening of the soil and obtain material from a depth or stratum that exhibited elevated radioactivity. This screening and selection is generally easier in test pits than in soil borings, as a greater quantity of soil is exposed and available for screening and sampling in a test pit.

STS contacted DIGGER, the Chicago utility clearing agency. A DIGGER number 232439821 was obtained for this work. STS also contacted Standard Parking, the operator for the parking lot, and obtained permission to block off a portion of the lot for the test pit work. The U.S. Environmental Protection Agency (USEPA) was notified of the test pit work to provide them the opportunity to visit the site. Mr. Larry Jensen of USEPA was present for the excavation and sampling work conducted on Thursday, November 21, 2002.

The test pit was excavated directly over the location of Boring B-27, the location with the elevated gamma readings (Figure 1). An opening in the asphalt pavement approximately 5 feet by 6 feet was made with a backhoe. The soil was surveyed at maximum lifts of 18 inches as the excavation proceeded to document the gamma radiation in the excavated soil. The survey was conducted using a Ludlum 2221 rate meter-scaler and a shielded 44-10 2-inch by 2-inch NaI probe. Soil that did not show evidence of radiological impacts was stockpiled separately from soil exhibiting elevated radioactivity.

Indications of increasing radioactivity were noted at approximately 2 to 3 feet deep. Two samples were recovered, one from 4.5 feet deep and one from 5 feet deep. The excavation was terminated at 5 feet deep where gamma readings measured 40,000 counts per minute (CPM) with a shielded probe. The threshold for indicating material over the cleanup level with this equipment configuration is 6,397 CPM. The excavation spoil was replaced in the test pit with the material exhibiting elevated radioactivity on the bottom and the clean soil placed on tip. The backfill was compacted with the backhoe bucket and wheel-rolled. A gravel cover was placed over the test pit for trafficability. The property owner was responsible for the final repair to the pavement.

The samples were placed in 500-ml Marinelli beakers and submitted to Radiation Safety Services, Inc. (RSSI) of Morton Grove, Illinois for gamma spectroscopy (gamma spec) analysis. The samples were field screened for relative activity using the Ludlum survey meter. The sample from 4.5 feet measured 53,000 CPM and the sample from 5 feet measured 29,700 CPM. In accordance with direction from USEPA for gamma spec analyses, the analysis was run using a Gamma Fraction Limit of 71% and a Library Energy Tolerance of 1.2. The RSSI laboratory reports are attached. Table 1 summarizes these analytical results.

The USEPA cleanup threshold for the vicinity properties is 7.1 pico Curies per gram (pCi/g) total radium, Ra-226 + Ra-228. The activities for these radionuclides are determined using surrogate radionuclides, in that the surrogate compounds are more readily identified and quantified than the radium isotopes. An assumption is made that the compounds are in equilibrium with their respective decay chains. Radium-226 represents the uranium decay series; radium-228 represents the thorium decay series. The surrogate for radium-226, in the uranium decay series, is lead-214 (Pb-214). The surrogate for radium-228, in the thorium decay series, is actinium-228 (Ac-228).

The 4.5 feet deep sample, Sample A, shows a Pb-214 activity of 6.20 pCi/g and an Ac-228 activity of 83.8 pCi/g. This totals 90.0 pCi/g total radium for Sample A. The sample from 5 feet deep, Sample B, shows a Pb-214 activity of 4.13 pCi/g and an Ac-228 activity of 23.5 pCi/g. This totals 27.63 pCi/g for Sample B. Both samples exceed the 7.1 pCi/g threshold set by USEPA for the cleanup level on the vicinity properties.

In conclusion, the sampling documented the presence of radiologically impacted material above the USEPA specified cleanup level. The primary radioactive materials appear to be the thorium decay series radionuclides. The material that was sampled and exhibits the elevated radioactivity is at a depth of 4.5 to 5 feet deep. This material would not be evident in surveying from the ground surface.

The results presented in this report represent the conditions at the location sampled and at the time sampled. Conditions may differ at other locations and at other times. No warranty is intended or implied regarding environmental conditions elsewhere on the site in providing the results or conclusions presented herein.

We appreciate the opportunity to be of service to HBE Corporation. Please contact us with any questions you may have regarding this matter or if we may be of service in some other manner.

Regards,

STS CONSULTANTS, LTD.

Stephen G. Torres, C.P.G.
Associate Geologist

Richard G. Berggreen, C.P.G.
Principal Geologist

Attachments Table 1, Gamma Spectroscopy Results
Figure 1, Test Pit Location
RSSI Radiological Analyses

TABLE 1

GAMMA SPECTROSCOPY RESULTS (PCI/G)

Sample No. Depth	Pb-214 (surrogate for Ra-226)	Ac-228 (surrogate for Ra-228)	Total Radium
A – 4.5 ft.	6.20	83.8	90.0
B – 5.0 ft.	4.13	23.5	27.6

RSSI High Resolution Gamma Spectroscopy Analysis

Quantum Technology
GDR_C Nuclide Activity Summary

Sample ID: 023800 STS P#24418ZE WALL 4.5 **Sample A**

Sample Size . . . . . 9.22e+002 g	Spectrum File . . H:\PCASPEC\023800.SPM
Sampling Start. 00-00-00 00:00	Counting Start. 11-22-02 16:16
Sampling Stop 00-00-00 00:00	Buildup Time. . . . . 0.00e+000 Hrs
Current Date. 00-00-00 00:00	Decay Time [OFF]. . . . . 0.00e+000 Hrs
Efficiency File.h:\gdr\eff\500mar.eff	Library File. . . .h:\gdr\lib\nuthk.lib
ID. 500mar	ID. . . . . U & Th Natural Series + K

Eff.= 1/[7.31e-002*En^-2.40e+000 + 7.89e+001*En^8.95e-001] 04-26-02 12:00

Gamma Fraction Limit >= . . . 71.00 %	Decay Limit <=. . . . 8.000 Halflives
Library Energy Tolerance. . . 1.20	

FINAL ACTIVITY REPORT

Nuclide	Energy (keV)	Conc +- 1.00sigma (uCi/g)	Halflife (hrs)	Peaks Found
Bi-214	Average:	7.36e-006 +-1.55e-007	3.32e-001	4 of 10
	609.31	5.47e-006 +-1.79e-007		
	727.17	5.34e-005 +-8.46e-007		
	1120.30	5.60e-006 +-4.60e-007		
	1764.50	8.15e-006 +-5.03e-007		
Pb-212	Average:	8.57e-005 +-2.79e-007	1.06e+001	6 of 6
	74.82	9.15e-005 +-1.67e-006		
	77.11	3.78e-005 +-1.07e-006		
	87.30	2.24e-005 +-1.70e-006		
	115.19	8.13e-005 +-1.85e-005		
	238.63	9.15e-005 +-3.00e-007		
	300.09	7.89e-005 +-2.16e-006		
Pb-214	Average:	6.20e-006 +-1.58e-007	4.47e-001	4 of 6
	74.82	6.22e-006 +-2.88e-006		
	87.30	6.22e-006 +-2.93e-006		
	295.21	6.14e-006 +-3.15e-007		
	351.92	6.22e-006 +-1.84e-007		
Ac-228	Average:	8.38e-005 +-3.33e-007	6.13e+000	10 of 10
	89.95	5.08e-005 +-4.60e-006		
	93.35	2.27e-005 +-3.18e-006		
	209.28	6.69e-005 +-1.84e-006		
	270.23	7.47e-005 +-2.19e-006		
	327.64	6.38e-005 +-2.03e-006		
	338.32	8.09e-005 +-7.80e-007		
	463.00	7.86e-005 +-1.70e-006		
	794.70	7.30e-005 +-1.82e-006		
	911.07	8.92e-005 +-5.12e-007		

	969.11	8.80e-005 +-7.04e-007			
Ra-226	186.10	1.74e-007 +-2.16e-008	1.40e+007	1 of	1
K-40	1460.80	1.20e-005 +-7.59e-007	1.12e+013	1 of	1

TOTAL: 1.95e-004 uCi/g

UNKNOWN PEAKS

Energy (keV)	Centroid Channel	Net Counts	Un-Certainty	C.L. Counts	Bkg. Counts	FWHM (keV)	Net Gamma/sec
50.80	220.38	15102	319	601	19980	2.09	4.144e+002
129.22	540.27	9147	455	909	45637	1.85	5.733e+001
154.08	641.71	2963	414	840	38957	2.30	1.753e+001
277.36	1144.59	7062	389	816	21376	2.21	5.223e+001
288.24	1188.98	1068	395	856	20017	1.64	8.118e+000
409.39	1683.18	4979	229	453	9468	2.11	4.993e+001
510.62	2096.15	18255	261	471	8750	2.55	2.211e+002
562.65	2308.39	1843	193	396	6665	2.27	2.429e+001
583.17	2392.11	59021	326	462	8120	2.48	8.027e+002
755.40	3094.68	1872	180	375	4608	2.66	3.199e+001
763.46	3127.54	821	197	422	5329	1.74	1.416e+001
772.54	3164.60	1930	145	286	3941	2.27	3.365e+001
785.78	3218.61	1040	147	300	4152	2.14	1.841e+001
835.91	3423.11	2123	128	251	2543	2.57	3.970e+001
840.48	3441.75	1174	111	221	2172	2.11	2.206e+001
860.72	3524.30	6737	142	245	2544	2.67	1.293e+002
893.77	3659.12	391	104	215	2038	2.05	7.760e+000
904.39	3702.46	1077	120	248	1955	2.71	2.160e+001
965.16	3950.34	7563	120	173	1345	2.89	1.607e+002
1079.31	4415.99	855	92	187	1285	2.34	2.008e+001
1094.40	4477.58	627	88	178	1301	2.65	1.491e+001
1110.66	4543.90	585	83	168	1152	2.31	1.409e+001
1246.97	5099.94	797	98	201	1353	2.60	2.129e+001
1496.08	6116.13	865	78	153	929	3.07	2.719e+001
1580.93	6462.26	457	82	171	788	2.34	1.509e+001
1588.74	6494.13	3687	85	126	663	3.22	1.223e+002
1593.08	6511.84	1953	75	129	564	2.79	6.495e+001
1621.14	6626.29	1294	88	170	1143	2.76	4.371e+001
1631.07	6666.82	1475	95	188	985	2.48	5.010e+001
1638.89	6698.70	353	75	156	784	2.26	1.204e+001

RSSI High Resolution Gamma Spectroscopy Analysis

Quantum Technology
GDR_C Nuclide Activity Summary

Sample ID: 023801 STS P#24418ZE WALL 5.0 **Sample B**

Sample Size . . . . . 8.54e+002 g	Spectrum File . . H:\PCASPEC\023801.SPM
Sampling Start. 00-00-00 00:00	Counting Start. 11-26-02 09:00
Sampling Stop 00-00-00 00:00	Buildup Time. . . . . 0.00e+000 Hrs
Current Date. 00-00-00 00:00	*Decay Time [OFF]. . . . . 0.00e+000 Hrs*
Efficiency File.h:\gdr\eff\500mar.eff	Library File. . . .h:\gdr\lib\nuthk.lib
ID. 500mar	ID. . . . . U & Th Natural Series + K

Eff.= 1/[7.31e-002*En^-2.40e+000 + 7.89e+001*En^8.95e-001] 04-26-02 12:00

Gamma Fraction Limit >= . . . 71.00 %	Decay Limit <=. . . . 8.000 Halflives
Library Energy Tolerance. . . 1.20	

FINAL ACTIVITY REPORT

Nuclide	Energy (keV)	Conc +- 1.00sigma (uCi/g)	Halflife (hrs)	Peaks Found
Bi-214	Average:	4.83e-006 +-9.91e-008	3.32e-001	5 of 10
	609.31	4.09e-006 +-1.15e-007		
	727.17	1.50e-005 +-4.60e-007		
	1120.30	4.89e-006 +-3.02e-007		
	1238.10	5.86e-006 +-6.72e-007		
	1764.50	5.31e-006 +-3.35e-007		
Pb-212	Average:	2.37e-005 +-1.46e-007	1.06e+001	5 of 6
	74.82	2.52e-005 +-9.40e-007		
	77.11	1.15e-005 +-5.59e-007		
	87.30	3.63e-006 +-9.84e-007		
	238.63	2.52e-005 +-1.56e-007		
	300.09	2.17e-005 +-1.12e-006		
Pb-214	Average:	4.13e-006 +-9.63e-008	4.47e-001	5 of 6
	74.82	4.05e-006 +-1.62e-006		
	87.30	4.05e-006 +-1.69e-006		
	241.98	4.05e-006 +-3.90e-007		
	295.21	4.44e-006 +-2.05e-007		
	351.92	4.05e-006 +-1.14e-007		
Ac-228	Average:	2.35e-005 +-1.85e-007	6.13e+000	8 of 10
	209.28	1.93e-005 +-9.81e-007		
	270.23	2.02e-005 +-1.18e-006		
	327.64	1.91e-005 +-1.21e-006		
	338.32	2.24e-005 +-4.28e-007		
	463.00	2.05e-005 +-9.21e-007		
	794.70	2.09e-005 +-9.58e-007		
	911.07	2.43e-005 +-2.86e-007		
	969.11	2.53e-005 +-3.83e-007		

Ra-226	186.10	9.00e-008 +-1.26e-008	1.40e+007	1 of 1
Ra-224	240.98	9.85e-006 +-7.39e-007	8.69e+001	1 of 1
K-40	1460.80	8.25e-006 +-5.15e-007	1.12e+013	1 of 1

TOTAL: 7.43e-005 uCi/g

UNKNOWN PEAKS

Energy (keV)	Centroid Channel	Net Counts	Un-Certainty	C.L. Counts	Bkg. Counts	FWHM (keV)	Net Gamma/sec
50.80	220.39	3937	166	312	5649	1.86	1.080e+002
129.03	539.52	2535	271	554	14724	2.43	1.590e+001
277.31	1144.40	1766	212	446	6425	2.00	1.306e+001
409.42	1683.31	1163	127	257	2921	1.89	1.166e+001
510.73	2096.61	4599	135	243	2518	2.78	5.571e+001
583.21	2392.25	15197	166	234	2246	2.43	2.067e+002
755.17	3093.74	408	86	176	1322	2.78	6.971e+000
772.80	3165.65	321	78	157	1236	1.66	5.598e+000
785.93	3219.23	449	71	139	975	2.02	7.948e+000
835.80	3422.67	511	64	124	809	2.07	9.554e+000
860.62	3523.90	1704	80	146	869	2.64	3.270e+001
965.16	3950.36	2176	64	93	368	3.11	4.625e+001
1588.65	6493.75	816	52	93	301	3.03	2.707e+001
1592.89	6511.06	435	40	71	219	2.71	1.446e+001
1621.30	6626.94	409	47	89	295	2.70	1.382e+001
1630.98	6666.44	409	48	95	309	3.26	1.389e+001